ENVIRONMENTAL ASSESSMENT FOR 11 BLM ALLOTMENTS
LOCATED IN THE RIO CHAMA WATERSHED
EA#NM-220-08-038

PURPOSE AND NEED

One of the major uses of public lands administered by the Bureau of Land Management (BLM) has traditionally been the grazing of cattle, sheep or horses for the benefit of individuals and communities throughout the western United States. This use is regulated by public land legislation, including the Taylor Grazing Act, the Endangered Species Act, the Federal Land Policy and Management Act, and the Public Rangelands Improvement Act. This document provides information needed to determine whether BLM should renew permits for cattle grazing on 11 allotments within the Rio Chama watershed for an additional 10 years. The 11 allotments are being analyzed in one document in order to address the cumulative effects of livestock on the BLM parcels within the Rio Chama watershed and to reduce the volume of paper involved in the public notification process. The allotments addressed in this Environmental Assessment include: # 504 El Rito Cr., #509 Canelejas, #511 Vallito Allotment, # 560 Rio Cebolla, #562 80 Acre Allotment, # 564 Ho ʻOkulea, # 565 Daggett Canyon, #566 Tanques Allotment, #571 Blanco Lookout, # 574 Navajo Peak and #638 Cañon Seco Allotment.

PROPOSED ACTION AND ALTERNATIVES

Proposed Action: No Action Alternative

Re-issue a term grazing permit without any changes as outlined in Table 1. For additional information, refer to Allotment Evaluation documents available for each allotment at the Taos BLM Field Office.

Alternative 1, No Grazing:

Do not issue grazing permits for these allotments, thereby suspending livestock grazing.

Table 1. Outline of allotment guidelines for permit renewal

Allotment Number	Livestock Type	Livestock Number	Season of Use	Total Federal Acres	Pastures	Grazing System	Proposed Improvements	Monitoring
504	Cattle	40	1/01 - 2/28	4,507	1	Dormant Season	Possible vegetation manipulation by fire, herbicide, or mechanical means **	BLM would continue the rangeland monitoring study program, continue to consult with the grazing permittee on placement of mineral and supplemental feed and continue monitoring for new populations of noxious weeds.
509	Cattle	2	3/01 - 2/28	21	1	Unknown	Possible vegetation manipulation by fire, herbicide, or mechanical means **	
511	Cattle	2 15	3/01 - 11/30 12/01 - 2/28	25	1	Unknown	None	
560	Cattle	267 267	11/28 - 12-19 12/20 - 5/15	1,280	2	Rotational	None	
562	Cattle	2	3/01 - 2/28	80	1	Unknown	None	
564	Cattle	74	5/01 - 11/30	1,100	7	Rotational	None	
565	Cattle	137	10/11 - 10-31	600	1	Rotational	None	

		267	11/01 - 11/27					
566	Cattle	137	8/03 - 10/10	640	1	Rotational	None	
571	Cattle	32	5/16 - 6/30	160	1	Rotational	Possible vegetation manipulation by fire, herbicide, or mechanical means **	
574	Cattle	137	5/16 - 7/23	4,152	4	Rotational	None	
638	Cattle	100	12/22 - 01/09	611	1	Unknown	None	
** These will be addressed in an amendment or in a later NEPA document if and when funding is available.								

Location and Maps

504 - Located approximately 2 miles east of El Rito, in Rio Arriba County, New Mexico. Elevations run from 6,500 to 7,000 feet. The allotment is located on the USGS El Rito and Ojo Caliente Quadrangle 7.5 minute series topographic maps. T. 24 N., R. 07 E. Sec 1, 2, 11, 12, 13, 14, 23, 24, 25 and 26 and T. 24 N., R 08 E. Sec 6, 7, 17, 18, 19 and 20.

509 - Located approximately 7 miles south of Ojo Caliente, in Rio Arriba County, New Mexico. Elevation on this allotment is roughly 6,000 feet. The allotment is located on the USGS Lyden Quadrangle 7.5 minute series topographic map. T. 23 N., R. 08 E. Sec 26.

511 - Located approximately 8 miles south of Ojo Caliente, in Rio Arriba County, New Mexico. Elevation on this allotment is roughly 6,000 feet. The allotment is located on the USGS Lyden Quadrangle 7.5 minute series topographic map. T. 23 N., R. 08 E. Sec 35.

560 - Located approximately 6 miles southwest of Cebolla, in Rio Arriba County, New Mexico. Elevation on this allotment is roughly 7,100 to 7,300 feet. The allotment is located on the USGS Alire and Las Nutrias Quadrangle 7.5 minute series topographic maps. T. 26 N., R. 03 E. Sec 11, 12, 13, 14, 15 and 24 and T. 26 N., R. 04 E. Sec 18 and 19.

562 - Located approximately 8 miles west, northwest of Cebolla, in Rio Arriba County, New Mexico. Elevation on this allotment is roughly 6,900 to 7,100 feet. The allotment is located on the USGS El Vado and Las Nutrias Quadrangle 7.5 minute series topographic maps. T. 27 N., R. 03 E. Sec 15, 16, 17, 19, 21 and 22.

564 - Located approximately 10 miles east of Cebolla, in Rio Arriba County, New Mexico. Elevation on this allotment is roughly 7,000 to 7,200 feet. The allotment is located on the USGS El Vado and Las Nutrias Quadrangle 7.5 minute series topographic maps. T. 26 N., R. 03 E. Sec 4 and T. 27 N., R. 03 E. Sec 33 and 34.

565 - Located approximately 10 miles southwest of Cebolla, in Rio Arriba County, New Mexico. Elevation on this allotment is roughly 7,100 to 7,400 feet. The allotment is located on the USGS Alire and Navajo Peak Quadrangle 7.5 minute series topographic maps. T. 26 N., R. 03 E. Sec 20, 28, 29 and 33.

566 - Located approximately 10 miles southwest of Cebolla, in Rio Arriba County, New Mexico. Elevation on this allotment is roughly 7,200 to 7,300 feet. The allotment is located on the USGS Alire and Navajo Peak Quadrangle 7.5 minute series topographic maps. T. 26 N., R. 03 E. Sec 27 and 34.

571 - Located approximately 10 miles southwest of Cebolla, in Rio Arriba County, New Mexico. Elevation on this allotment is roughly 7,100 to 7,200 feet. The allotment is located on the USGS Alire Quadrangle 7.5 minute series topographic map. T. 26 N., R. 03 E. Sec 23 and 26.

574 - Located approximately 15 miles southwest of Cebolla, in Rio Arriba County, New Mexico. Elevation on this allotment is roughly 6,600 to 7,500 feet. The allotment is located on the USGS El Vado and Navajo Peak Quadrangle 7.5 minute series topographic maps. T. 26 N., R. 02 E. Sec 3, 9, 10-16, 22 and 23.

638 - Located approximately 5 miles north, northeast of Ojo Caliente, in Rio Arriba County, New Mexico. Elevation on this allotment is roughly 6,500 to 6,800 feet. The allotment is located on the USGS Ojo Caliente and Taos Junction Quadrangle 7.5 minute series topographic maps. T. 24 N., R. 09 E. Sec 5.

See Figure 1 for the map. Individual allotment maps are available at the Taos Field Office and upon request.

AFFECTED ENVIRONMENT / ENVIRONMENTAL IMPACTS

Areas of Critical Environmental Concern / Special Management Areas

Portions of allotment 574 are included within the Rio Chama Special Management Area (SMA). In accordance with the management prescriptions for these areas no increase in grazing preference is proposed in **either alternative**.

Wilderness / Wilderness Study Areas

All of allotment 574 is within the Rio Chama Wilderness Study Area (WSA). Livestock grazing is one of the grandfathered uses within WSA. In accordance with the management prescriptions for these areas no increase in grazing preference is proposed in **either alternative**. Therefore, there would be no adverse affect to wilderness/wilderness study areas by **either alternative**.

Air Quality

The Clean Air Act Amendments in 1990 required that all federal actions conform with State Implementation Plans for air quality. One non-attainment area has been designated in New Mexico. None of these areas are located on or near the allotment.

Although this allotment is not within a non-attainment area, greenhouse gas emissions from non-renewable sources often occur from ranching operations. Greenhouse gases (GHG), including carbon dioxide (CO_2) and methane (CH_4), and the potential effects of GHG emissions on climate, are not regulated by the EPA under the Clean Air Act. However, greenhouse gas emissions are linked to climate change.

Under the **proposed action**, GHG emissions are expected to be generated primarily from vehicles used to manage cattle operations and may be estimated to be about 10 tons of relevant emission. The BLM recommends using best management practices to reduce these emissions, such as reducing number of trips, keeping vehicle well maintained, purchasing more fuel efficient vehicles. There would be no effect under the **no grazing alternative**.

Climate

Global mean surface temperatures have increased nearly 1.0°C (1.8°F) from 1890 to 2006 (Goddard Institute for Space Studies, 2007). However, observations and predictive models indicate that average temperature changes are likely to be greater in the Northern Hemisphere. Without additional meteorological monitoring systems, it is difficult to determine the spatial and temporal variability and change of climatic conditions, but increasing concentrations of GHGs are likely to accelerate the rate of climate change.

In 2001, the Intergovernmental Panel on Climate Change (IPCC) predicted that by the year 2100, global average surface temperatures would increase 1.4 to 5.8°C (2.5 to 10.4°F) above 1990 levels. The National

Academy of Sciences (2006) supports these predictions, but has acknowledged that there are uncertainties regarding how climate change may affect different regions. Computer model predictions indicate that increases in temperature will not be equally distributed, but are likely to be accentuated at higher latitudes. Warming during the winter months is expected to be greater than during the summer, and increases in daily minimum temperatures is more likely than increases in daily maximum temperatures. It is not, however, possible to predict with any certainty regional or site specific effects on climate relative to the proposed lease parcels and subsequent actions.

However, potential impacts to natural resources and plant and animal species due to climate change are likely to be varied, including those in the southwestern United States. For example, if global climate change results in a warmer and drier climate, increased particulate matter impacts could occur due to increased windblown dust from drier and less stable soils. Cool season plant species' spatial ranges are predicted to move north and to higher elevations, and extinction of endemic threatened/endangered plants may be accelerated. Due to loss of habitat or competition from other species whose ranges may shift northward, the population of some animal species may be reduced or increased. Less snow at lower elevations would likely impact the timing and quantity of snowmelt, which, in turn, could impact water resources and species dependant on historic water conditions. Forests at higher elevations in New Mexico, for example, have been exposed to warmer and drier conditions over a ten year period. Should the trend continue the habitats and identified drought sensitive species in these forested areas and higher elevations may also be more affected by climate change.

In New Mexico, a recent study indicated that the mean annual temperatures have exceeded the global averages by nearly 50% since the 1970's (Enquist and Gori). Similar to trends in national data, increases in mean winter temperatures in the southwest have contributed to this rise. When compared to baseline information, periods between 1991 and 2005 show temperature increases in over 95% of the geographical area of New Mexico. Warming is greatest in the northwestern, central, and southwestern parts of the state.

We anticipate that monitoring efforts will help indicate vegetation shifts, allowing for management modifications to address global climate change.

Soils

The following soils are identified as occurring on the allotments analyzed in the watershed:

Abiquiu-Peralta complex, 0 to 3 percent slopes. These soils consist of silt loam and loamy fine sand, with rooting depths over 60 inches. Parent materials of alluvium derived from igneous, metamorphic and sandstone rock comprise these soils. Average annual precipitation ranges between 8 and 10 inches. Vegetation is characterized by Rio Grande cottonwood, wheatgrass, alkali sacaton, willow and fourwing saltbush.

Amal silt loam, 2 to 8 percent slopes. This soil consists of silty loams, with rooting depths over 60 inches. Parent materials of alluvium and eolian material derived from shale comprise these soils. Average annual precipitation ranges between 14 and 16 inches. Vegetation is characterized by pinyon, juniper, blue grama, squirreltail, June grass, oak and sagebrush.

Berryman-Ruson association, 1 to 8 percent slopes. The soil consists of silt loams, with rooting depths over 60 inches. Parent materials of alluvium derived from limestone and shale comprise this soil. Average annual precipitation ranges between 14 and 16 inches. Vegetation is characterized by western wheat, squirreltail, blue grama, alkali sacaton and sagebrush.

Calendar gravelly loam, 5 to 35 percent slopes. The soil consists of loams, with rooting depths around 40 inches. Parent materials of alluvium from shale comprise this soil. Average annual precipitation ranges between 14 and 17 inches. Vegetation is characterized by pinyon, juniper, oak, June grass, muttongrass and sagebrush.

Chita loam, 0 to 5 percent slopes. These soils consist of loams, with rooting depths over 60 inches. Parent material of alluvium and eolian sediments derived from sandstone and igneous rocks comprise these soils. Average annual precipitation in this area ranges from 12 to 14 inches. Vegetation is characterized by western wheat, blue grama, Indian ricegrass, galleta, fourwing saltbush and sagebrush.

Dermala-Roced complex, 20 to 50 percent slopes. These soils consist of very gravelly loams, with rooting depths over 60 inches. Parent material of alluvium and colluvium derived for igneous and metamorphic rock comprise these soils. Average annual precipitation in this complex ranges from 12 to 14 inches. Vegetation is characterized by pinyon, juniper, blue grama, galleta, side oatsgrama, and muttongrass.

Elpedro silt loam, 1 to 5 percent slopes. This soil consists of silty clay loams, with rooting depths over 60 inches. Parent materials of eolian sediments and alluvium derived from sandstone and shale comprise these soils. Average annual precipitation ranges between 12 and 14 inches. Vegetation is characterized by western wheat, blue grama, galleta, Indian ricegrass, and sagebrush.

Florita-Rock outcrop complex, 15 to 45 percent slopes. These soils consist of gravelly and sandy loams with rooting depths over 60 inches and sandstone outcrops. Parent material of alluvium and eolian derived from sandstone comprise these soils. Average annual precipitation in this complex ranges from 10 to 12 inches. Vegetation is characterized by pinyon, juniper, sideoats grama, black grama, blue grama, needle and thread and muttongrass.

Orlie fine sandy loam, 1 to 8 percent slopes. This soil consists of sandy loams, with rooting depths over 60 inches. Parent materials of alluvium and eolian materials derived from sandstone and shale comprise these soils. Average annual precipitation ranges between 12 and 14 inches. Vegetation is characterized by western wheat, blue grama, galleta, Indian ricegrass, needle and thread and sagebrush.

Parida-Palacid very gravelly sandy loams, 10 to 40 percent slopes. These soils consist of very gravelly loams, with rooting depths over 60 inches. Parent material of alluvium and colluvium derived for sedimentary and metamorphic rock comprise these soils. Average annual precipitation in this complex ranges from 10 to 12 inches. Vegetation is characterized by sideoats grama, black grama, blue grama, and galleta.

Pinavetes loamy sand, 3 to 12 percent slopes. This soil consists of loamy sand with rooting depths over 60 inches. Parent material of eolian derived form sandstone comprises this soil. Average annual precipitation ranges from 10 to 12 inches. Vegetation is characterized by blue grama, Indian ricegrass, black grama, bottlebrush squirreltail, sideoats grama, threeawn and Sand sagebrush.

Penistaja fine sandy loam, 2 to 8 percent slopes. This soil consists of fine sandy and sandy clay loam, with rooting depths over 60 inches. Parent material of eolian and alluvium derived from sandstone and shale comprise this soil. Average annual precipitation ranges from 10 to 12 inches. Vegetation is characterized blue grama, Indian ricegrass, needle and thread, western wheatgrass, winterfat and bottlebrush squirreltail.

Penny-Ransect association, 1 to 20 percent slopes. The soil consists of an assortment of loams, with rooting depths between 10 and 38 inches. Parent materials of alluvium and colluvium derived from limestone comprise this soil. Average annual precipitation ranges between 15 and 17 inches. Vegetation is characterized by pinyon, juniper, oak, June grass, mountain mahogany and Indian ricegrass.

Sparham clay loam, 0 to 3 percent slopes. This soil consists of clay loams with rooting depths over 60 inches. Parent material of alluvium derived from sandstone and shale comprise this soil. Average annual precipitation ranges from 12 to 15 inches. Vegetation is characterized by pasture grasses.

Teromote-Ruson association, 1 to 8 percent slopes. These soils consist of loam and clay loams, with rooting

depths between over 60 inches. Parent materials of alluvium derived from shale comprise these soils. Average annual precipitation ranges between 14 and 17 inches. Vegetation is characterized by blue grama, western wheat, galleta, Indian ricegrass, needle and thread, squirreltail and sagebrush.

Tinaja-Rock outcrop complex, 45 to 75 percent slopes. These soils consist of loam and sandy clay loams, with rooting depths between over 60 inches. Parent materials of colluvium derived from sandstone comprise these soils. Average annual precipitation ranges between 13 and 15 inches. Vegetation is characterized by pinyon, juniper, blue grama, sideoats grama, muttongrass and mahogany.

Walrees-Abiquiu complex, 0 to 2 percent slopes. These soils consist of clay loam and sandy loams, with rooting depths over 60 inches. Parent materials of alluvium derived from igneous, metamorphic and sandstone rock comprise these soils. Average annual precipitation ranges between 8 and 10 inches. Vegetation is characterized by Rio Grande cottonwood, wheatgrass, inland saltgrass, wild rose and fourwing saltbush.

Yarts sandy loam, 1 to 4 percent slopes. This soil consists of sandy loams, with rooting depths over 60 inches. Parent material of alluvium derived from sedimentary rocks comprises this soil. Average annual precipitation ranges from 10 to 12 inches. Vegetation is characterized by western wheatgrass, Indian ricegrass, blue grama, galleta, and fourwing saltbush.

The **proposed action** could cause both positive and negative impacts to the soils. Livestock impacts to soils are dependent on management, soil properties and weather. For example, livestock movement over wet soils can result in increased erosion and soil compaction. Proper distribution of livestock minimizes the negative impacts while still providing the positive impacts, such as loosening of compacted soils and breaking up hydrophobic crusts resulting in increased infiltration. It is important that livestock are managed so that density and diversity of vegetation cover are maintained to limit soil loss.

Under current management, soil indicators for the allotments point to good soil condition (Average = 90%) with the lowest Soil and Site Stability rating being 74% (see the 'Standards for Rangeland Health' portion later in this document for further information and explanations).

Based on current knowledge, the **proposed action** will result in no impact or have a positive impact. The **no grazing alternative** would remove livestock from the area and eliminate both the positive and negative impacts of livestock.

Wetlands/Riparian Areas

The allotments identified in this document contain ephemeral channels adjacent to an interstate water. These are identified as Waters of the United States by the U.S. Army Corps of Engineers (USACE). The **proposed action** would not have a notable negative impact on these channels. Any alteration of these channels would require clearance from the Taos Field Office and USACE.

Allotment 574 is bounded by the canyon rims of the Rio Cebolla to the south and the Rio Chama to the west. The Rio Cebolla is an ephemeral channel that supports sparse riparian vegetation, including willow and cottonwood. Due to the hydrology of the system, it is unlikely that **either alternative** will have an effect on the riparian area of the Rio Cebolla. Pursuant to the Riparian and Aquatic Habitat Management Plan (2000), enclosures within the Lobo Canyon (rated as Functioning at Risk in 1997) have been constructed to protect that riparian area from livestock grazing, therefore, it is unlikely that **either alternative** will have an effect on the riparian area in this canyon. The canyon rim along the Rio Chama (rated as Proper Functioning Condition in 1994) is a topographic barrier to the riparian zone below and restricts any livestock use of that area from this allotment, therefore, it is unlikely that **either alternative** will have an effect on the riparian area on the Rio Chama. The riparian areas of the Rio Cebolla and Rio Chama were both assessed as being in Proper Functioning Condition in 1994.

Allotments 509 and 511 include a robust riparian zone along the Rio Ojo Caliente, including saltcedar, Russian olive, willow and cottonwood. The Taos Field Office Riparian and Aquatic Habitat Management Plan calls this area "Ojo Caliente Lower" and provides for development and implementation of a grazing agreement that protects riparian habitat. The riparian area was assessed as Functioning at Risk in 1994. Although a limited number of livestock are being authorized, it is possible that due to the duration of grazing trampling and foraging along streambanks could cause erosion and loss of plant cover in the riparian zone. Therefore, the **proposed action** may have negative impacts to the riparian zone in this allotment, while the **no grazing alternative** would remove livestock from the area and eliminate any impacts due to livestock.

Water Quality

Subsurface water – Current impairments are not identified and ground water is not likely to be impacted by the proposed cattle. Therefore, based on current knowledge, there would be no impact from **either alternative**.

Surface – These allotments are located in Hydrologic Unit (HUC) 13020102, which comprise 1,736,950 acres along the Rio Chama and its tributaries and is further divided into smaller HUCs. The allotments analyzed in this document occur in four of these smaller HUCs (Table 2).

Table 2. Summary of BLM allotments by 10 Digit HUC (subwatershed and NMED evaluation unit.

NMED Assessment Unit	Subwatershed	Allotments	BLM Acreage	Percent of Subwatershed
NM-2113_10	Rio Ojo Caliente	504, 509, 511, 638	3,321	2.8%
NM-2113_40	El Rito	504	1,843	2.1%
NM-2115_00, NM2116.A_060	Rio Gallina – Rio Chama	562, 574	3,404	1.7%
NM-2116.A_050	Rio Cebolla	560, 564, 565, 566, 571, 574	4,608	5.4%

The New Mexico Environment Department surveyed and evaluated perennial reaches in 2002 and identified impairments for stream reaches not meeting water quality standards for designated uses. The following impairments are identified for these units:

NM-2113_10, Rio Ojo Caliente – Includes 3,321 acres of BLM land in allotments 504, 509, 511 and 638. This reach was assessed in 2002 and categorized as 1, not supporting coldwater or warmwater fishery. Probable causes were stream bottom deposits and Aluminum - chronic with probable sources including removal of riparian vegetation, recreation and tourism (other than boating), natural sources, hydromodification, channelization, range grazing, irrigated crop production, grazing related sources, crop related sources, agriculture, bank or shoreline modification/destabilization and habitat modification.

NM-2113_40, El Rito Creek – Includes 1,843 acres of BLM land in allotment 504. This reach was assessed in 2002 and categorized as 1, not supporting coldwater fishery. Probable causes were aluminum - chronic with probable sources including natural and unknown sources.

NM-2116.A_050, Rio Cebolla – Includes 4,608 acres of BLM land in allotments 560, 546, 565, 566, 571 and 574. This reach was assessed in 2002 and categorized as 2, not supporting high quality coldwater fishery. Probable causes were conductivity with probable sources including removal of riparian vegetation, range grazing, irrigated crop production, grazing related sources, crop related sources, agriculture and habitat modification.

NM-2116.A_060, Rio Nutrias – Includes 80 acres of BLM land in allotment 562. This reach was assessed in 2002 and categorized as 5/5A, not supporting high quality coldwater fishery. Probable causes were turbidity with probable sources including removal of riparian vegetation, range grazing, irrigated crop production,

grazing related sources, crop related sources, agriculture, bank or shoreline modification/destabilization and habitat modification.

Based on Rangeland Health Evaluation surveys, there is not likely to be any increased water quality impairments resulting from the **proposed action**. This opinion is based on two factors: BLM land surface in these subwatersheds comprise a low percentage of the total area and ratings for Soil/Site Stability and Hydrologic Function average over 90% similarity to ecological site descriptions. The survey team identified three likely reasons contributing to reduced health: historic overuse, drought and altered fire regimes. It is recommended that all allotments not averaging at least 80% for any category manipulate grazing or implement range improvements to improve conditions (See section 'Standards for Rangeland Health' and Table 5). The **no grazing alternative** may reduce the probable sources of impairments by removing livestock from the allotments.

Floodplains

Surveys occurring during 2007 indicated that flood plains mainly occur within ephemeral channels or arroyos. There are not mapped by FEMA and their frequency and extent of inundation are difficult to estimate due to a lack of gauge data. However, significant flow can occur resulting in channel scouring. Upslope conditions and hydraulic alteration of these channels can degrade the floodplain resulting in excessive erosion and increased flow rates. Any permittee alteration planned within these channels will require a separate NEPA analysis and permits from other regulatory agencies.

Allotments 509 and 511 contain floodplain areas adjacent to the Ojo Caliente River. Grazing within these floodplains is restricted to minimal livestock during the active growing season. Some channel destabilization may occur with livestock grazing, but was not specifically noted by the survey team.

Grazing in compliance with the **proposed action** will have minimal adverse effect on floodplains due to timing and intensity of grazing. The **no grazing alternative** would have no direct negative effect on ephemeral floodplains.

Hazardous or Solid Wastes

There were no hazardous or solid wastes identified on the allotments or will result from the proposed action. There would be no effect under **either alternative**.

Wild and Scenic Rivers

The western portion of allotment 574 is within the Rio Chama Wild and Scenic area. Due to the canyon rim livestock are not able to graze this area, conforming with the restriction on grazing in the Wild and Scenic River Corridor, consequently there would be no effect in **either alternative**.

Prime or Unique Farmland

There have been no prime or unique farmlands identified within the Taos Field Area, to there would be no effect under **either alternative**.

Vegetation

Vegetation expected for the soils identified in the allotments include: western wheatgrass, Rio Grande cottonwood, wheatgrass, alkali sacaton, willow, fourwing saltbush, pinyon, juniper, blue grama, squirreltail, June grass, oak, sagebrush, Indian ricegrass, Galleta, sideoats grama, muttongrass, black grama, needle and thread, bottlebrush squirreltail, threeawn, Sand sagebrush, winterfat, oak, pasture grasses, mahogany,

wheatgrass, inland saltgrass, wild rose and other species in smaller amounts.

Grazing can and has impacted vegetation within some of the allotments, especially those with historic sheep grazing. Other impacts to vegetation have been the lack of natural disturbance. The interdisciplinary resource team concluded that the allotments are in better ecological condition than in the past. Therefore, under the **proposed action**, short-term impacts to vegetation are expected while long term trends are not the result of current grazing. Under the **no grazing alternative**, there would be no measurable vegetative removal from the allotment.

Noxious Weeds

Any time livestock are grazed in other areas and then returned to the allotment or fed non-certified feed there is a risk of introducing exotic or noxious plant species to the allotment. The **proposed action** would not pose additional risks of introduction or spread of noxious weeds beyond those already occurring. Under both the **proposed action** and **no grazing alternative**, weeds could be introduced by road maintenance equipment or recreational activities.

Under the **proposed action**, weeds could be introduced to the allotment through livestock feces, emergency feed, watering equipment or vehicles associated with the management of livestock. The **no grazing alternative**, would limit the risk of new infestation to those caused by human activities and wildlife.

Cultural Resources

All allotments were visited and Class 2 surveys were completed to identify sites to determine the impacts grazing may have on the sites located. Results are summarized in Table 3.

Table 3. Summary of cultural resource surveys by allotment

Allotment Number	Total Federal Acres	Survey Date	Sites Recorded	Site Type	Adverse Affects
504	7/10/2007	7/10/2007	5	Lithic and Historic Scatters (LA 39501) (LA 39502) (LA 39503) (LA 39504) (LA 39505)	NONE*
509	7/9/2007	7/10/2007	0	N/A	NONE
511	7/9/2007	7/10/2007	0	N/A	NONE
560	7/24/2007	7/24/2007	0	N/A	NONE
562	6/25/2007	6/25/2007	0	N?A	NONE
564	8/31/2007	8/31/2007	0	N/A	NONE
565	7/24/2007	7/24/2007	0	N/A	NONE
566	7/24/2007	7/24/2007	0	N/A	NONE
571	7/24/2007	7/24/2007	1	Lithic Scatter (FS-571-01)	NONE
574	7/25/2007	7/24/2007	0	N/A	NONE
638	8/23/2007	8/23/2007	0	N/A	NONE

***** National Register Eligible sites require continued monitoring, but these show no adverse affects to grazing at this time.

Under the **proposed action**, grazing intensity would remain at current levels. Based upon a literature, site and survey files review and the reconnaissance inventory, it is likely that little or no damage would result from grazing. But, continued grazing in these subject allotments could impact cultural resources in two ways. First,

grazing could cause some trampling of artifacts and features. Second, natural erosion due to ground disturbance could damage sites. These effects would be slightly less under the **no grazing alternative**. As seen in the Table 3, no impacts to cultural resources were discerned during the surveys of the allotments. Therefore, there would be little or no damage to cultural sites form grazing. The **no grazing alternative**, would have no effect on cultural resources by removing livestock from the allotment.

Native American Religious Concerns

There have been no areas of concern identified within these allotments. As part of the EA process, all tribes within the Field Office boundary will receive the opportunity to provide information on any areas of concern in or near the allotments.

Fish and Wildlife

The allotments are located in the Intermountain Basins Big Sagebrush Shrubland, Riparian, and Rocky Mountain Montane Mixed Conifer Forest and Woodland, key wildlife habitat types as identified in the Comprehensive Wildlife Conservation Strategy of the New Mexico Department of Game and Fish (2005). Existing habitat with the allotments include; pinyon-juniper woodlands, open prairie, sagebrush savannahs, and riparian areas, and supports seasonal home ranges for elk, mule deer, mountain lion, black bear, bobcat, fox, coyote, small mammals, bats, raptors, turkey vulture, songbirds, amphibians, and a variety of insects. Allotments 574, 565, 566, 560, 571, 564 and 562 represent an important migration corridor for big game species such as elk and mule deer, while the riparian areas in all the allotments provide critical corridors of movement for all wildlife species. Fish species found in the Rio Chama by the survey team include: Brown trout, Rainbow trout, White sucker, Common carp, Fathead minnow, Longnose dace and Rio Grande chub.

Impacts of improper grazing practices on wildlife and habitat include: increased competition for limited water, forage, and space; alteration of vegetative composition and structure; impacts to stream hydrology and water quality; and reduced soil permeability and potential to support plants due to soil compaction. Judicious grazing practices can have positive affects on wildlife and be a beneficial management tool; these include: increases in vegetation composition diversity and improvement of forage availability and quality for early to mid-successional wildlife species; creation of patchy habitat with high structural diversity for feeding, nesting and hiding; opening up areas of dense vegetation to improve foraging areas for a variety of wildlife; removing rank, coarse grass that will encourage regrowth and improve abundance of high quality forage for wild ungulates; stimulating browse production by reducing grass biomass; and improving nutritional quality of browse by stimulating plant regrowth (NMDGF 2005).

All the allotments contain critical winter range for elk and mule deer. Winter range is considered the most limiting habitat type for elk and mule deer, and includes sagebrush-steppe, pinyon-juniper woodlands, mountain shrub, and ponderosa pine below 7,500 feet. Winter diets for mule deer are a combination of forbs, browse, and new growth on cool-season grasses. Browse becomes an increasing portion of the diet as snow accumulates or forbs and grasses become depleted. In northern New Mexico, mule deer become concentrated on winter ranges with densities of 20-100 deer/square mile in suitable habitat (Watkins and Bishop et al. 2007). Winter ranges are critical because these areas support higher densities of mule deer and elk on less available forage, are less tolerant of high herbivory rates, are prone to non-native weed invasion, and are potential areas for development of energy, minerals or residential subdivisions.

Studies in northern New Mexico have indicated that total elimination of grazing did not improve range condition on upland or lowland sites when compared with adjacent moderately grazed areas (Holecheck and Stephenson 1985). There are examples that suggest many wildlife species are tolerant of moderate grazing and many appear to benefit from light to conservative grazing. Smith et al. (1996) found that lightly grazed climax rangelands and conservatively grazed late seral rangelands had similar songbird and total bird populations. They also concluded that wildlife diversity was higher on the conservatively grazed late seral than the lightly

grazed climax rangeland. Studies in southeastern Arizona by Bock et al. (1984) support the hypothesis that conservatively to moderately grazed areas in mid or late seral condition supported greater diversity of wildlife than ungrazed areas in climax condition. Livestock grazing was also shown to enhance forage for elk and manage their distribution by increasing availability and nutritional value of preferred grasses in early growth stages (Holechek et al. 2004).

Best management practices would ensure that forage production within this area can support fish, wildlife and livestock on a sustained basis. The functionality assessment of habitat components is as outline in Table 4.

Table 4. Functionality assessment for Biotic Fauna.

Allotment	Biotic Fauna Rating	Summary
504	Proper Functioning Condition	N/A
509	Functioning at Risk-Downward Trend	Increase of Russian Olive and saltceder
511	Functioning at Risk-Static	Presence of Russian Olive and saltceder
560	Proper Functioning Condition	N/A
562	Proper Functioning Condition	N/A
564	Proper Functioning Condition	N/A
565	Proper Functioning Condition	N/A
566	Proper Functioning Condition	N/A
571	Functioning at Risk-Upward Trend	Increase in species diversity
574	Proper Functioning Condition	N/A
638	Proper Functioning Condition	N/A

The **proposed action** would not have a notable adverse impact on fish or wildlife. Analyses of resident herbivore diets show cattle primarily eat grasses (Jeffers 1985), while elk graze and browse a variety of plant species depending on the season and forage quality and availability, preferring green grass in the spring, eating more forbs and shrubs in the summer, and often shrubs and conifers in winter. Mule deer forage consists primarily of shrubs and trees in all seasons, with up to 50% being forbs the in the summer and 25% consisting of grasses in the spring (Watkins and Bishop et al. 2007). Based on the Rio Chama not having any impairments and the lack of river access by livestock, fish species will not be notably affected. The **no grazing alternative** would remove all possible competition between wildlife and livestock.

Threatened or Endangered Species

Federally listed threatened (T) and endangered (E) species in Rio Arriba County, New Mexico, include: black-footed ferret (*Mustela nigripes*) (E); Southwestern willow flycatcher (*Empidonax traillii extimus*) (E); interior least tern (*Sterna antillarum*) (E); Rio Grande silvery minnow (*Hybognathus amarus*) (E); and Mexican spotted owl (*Strix occidentalis lucida*) (T).

The riparian area associated with the Rio Cebolla adjacent to allotment 574 has been classified as long term potential habitat for Southwestern willow flycatcher under the Taos Field Office Southwestern Willow Flycatcher Management Plan (1998), however, habitat does not currently exist and it is unlikely the hydrology of this system could provide for future potential flycatcher habitat. The Taos Field Office Riparian and Aquatic Habitat Management Plan (2000) calls for the riparian zone in allotment 509 to be managed for recovery of Southwestern willow flycatcher habitat. Although no survey information is available for this reach, it is possible the species may use the area as migratory stopover habitat, but no nesting habitat currently exists and no known populations of flycatchers are documented in the area. Therefore, it is determined that there are no federally listed threatened or endangered species likely to be found in the subject allotments.

There is one state-listed threatened species which may be found in riparian areas, the Bald eagle (*Haliaeetus leucocephalus*), during winter months. There is a sub-species of the Gunnison's prairie dog (montane) (*Cynomys gunnisoni*), listed as a federal Candidate species, that could occur on allotments 574, 565, 566, 560,

571, 564 and 562. There is no designated critical habitat for any species listed by the U.S. Fish and Wildlife Service (USFWS) within the allotments.

It is determined that the **proposed action** or **no grazing alternative** will have no affect on federally listed threatened or endangered species, and minimal to no impact on species that are listed as Proposed or Candidate species by the USFWS, or state-listed threatened or endangered species.
Migratory bird species of conservation concern (BLM Interim Management Guidance 2008-050) that have the potential to occur on the allotments include burrowing owl, ferruginous hawk, prairie falcon, golden eagle, loggerhead shrike, mourning dove, pinyon jay, Brewer's sparrow, and sage sparrow. The **proposed action** has the potential to have a negative affect upon individual birds, eggs, young and/or the nesting habitat of ground nesting birds, due to trampling, however, it is unlikely there would be a notable impact to the population of these or any other species of conservation concern. The **no grazing alternative** could have either a beneficial or detrimental affect on individual migratory bird species of concern, depending on the response of range condition and individual species requirements, but affects at the population or species level would not be adverse.

Species of Greatest Conservation Need (NMDGF 2005) that have the potential to occur on the allotment include: ferruginous hawk, mourning dove, loggerhead shrike, sage thrasher, sage sparrow, bald eagle, golden eagle, olive-sided flycatcher, pinyon jay, yellow warbler, white-tailed jackrabbit, Gunnison's prairie dog, mule deer, black bear, tiger salamander, and collared lizard. It is determined that the **proposed action** and **no grazing alternative** will have minimal impacts on Species of Greatest Conservation need.

Social / Economic Issues

BLM permits/leases are transferred to qualified applicants at the request of the current permittee/lessee; the BLM has had no influence on the social makeup of those who currently hold these permits. Therefore, it has been determined that neither the **proposed action** nor the **no grazing alternative** would be likely to result in impacts which would occur disproportionately in low-income groups, minorities or Indian tribes. With regard to economics, the **proposed action** would allow the permittee to continue the lifestyle they have known and earn money from cattle operations on federal lands. Suspension of the grazing permit under the **no grazing alternative** would cause monetary losses to the permittee/lessee, in the form of increased costs to rent additional pasture or in purchasing feed.

Recreation

There are no developed recreation sites on the subject allotments. Allotment 574 is bounded by the Rio Chama, which is a popular rafting location. Due to the restriction of grazing in the Rio Chama Wild and Scenic area and the canyon rim blocking any view of livestock grazing it is determined that neither the **proposed action** nor the **no grazing alternative** would have measurable impacts on recreation.

Standards for Rangeland Health

Field crews completed the Rangeland Health Evaluation Summary Worksheet for all the subject allotments, with subdivision by parcel or distinct Ecological Site. Results are summarized in Table 5 by Soil/Site Stability, Hydrologic Function and Biotic Integrity and totals by site and indicator group. The percent similar indicator score was created by multiplying an assigned value for departure from site descriptions/reference areas by the number of indicators at the level. Departure scores are categorized as: none to slight = 5, slight to moderate = 4, moderate = 3, moderate to extreme = 2 and extreme = 1, thus giving the most similar sites the highest score.. For example, if all indicators under Soil/Site Stability were rated none to slight (best condition), the equation would be 5(score)*9indicators=45/45*100 = 100% similarity, or what is expected based on an Ecological Site Description.

The Standards are a tool for assessing range condition and are not analyzed under **either alternative** here. If an allotment or pasture falls below 80% in the Soil Site Stability, Hydrologic, or Biotic indicators, monitoring should be established to determine the cause/s of the low rating. The BLM in consultation with the permittee and various other agencies, through an interdisciplinary effort would develop goals and objectives for the areas that are falling below 80% to improve the condition.

Table 5. Summary of indicators by allotment.

Allotment Number	Observers	Survey Date	Percent of Soil/Site Stability	Percent of Hydrologic Function	Percent of Biotic Integrity	Average Percentage
504	Harmon, Riehn, Young	7/10/2007	98%	96%	91%	95%
509	Gustina, Harmon, Herrera-Olivas, Lopez, Riehn, Williams, Young	7/9/2007	98%	98%	93%	96%
511	Gustina, Harmon, Herrera-Olivas, Lopez, Riehn, Williams, Young	7/9/2007	100%	100%	86%	95%
638	Riehn, Young	8/23/2007	96%	96%	98%	97%
Total Ojo Caliente Watershed			98%	98%	92%	96%
560	Riehn, Young	7/24/2007	78%	78%	84%	80%
562	Lopez, Meyer, Young	6/25/2007	94% 90%	92% 90%	80% 80%	89% 87%
564	Riehn, Young	8/31/2007	74%	72%	87%	78%
565	Riehn, Young	7/24/2007	92%	92%	91%	92%
566	Riehn, Young	7/24/2007	92%	92%	91%	92%
571	Riehn, Young	7/24/2007	80%	78%	86%	81%
574	Riehn, Young	7/25/2007	86%	84%	93%	88%
Total Rio Chama Watershed			86%	85%	87%	86%

Residual Impacts

Residual impacts of livestock grazing would not change under the **proposed action**. There would continue to be moderate removal of current years growth on forage species. This removal may be detectable by visitors to the area but is within the acceptable range. Livestock would be visible on the allotment during their season of use. This can be positive or negative depending on the perspective of each visitor. There would be no measurable impact from the **no grazing alternative**.

Cumulative Impacts

The primary disturbance factor within the region has been historical grazing with subsequent habitat conversion. The area has been affected by habitat fragmentation and conversion due to urban, residential, commercial, and recreational activities and development. The future effects of these developmental factors may increase as human populations in the area continue to grow.

BLM land comprises roughly 6% of the area within the Rio Chama watershed. (Percentages are relative to lands within the Taos Field Office.) The subject allotments cover roughly 12% of the BLM land in this watershed and 0.8% of the total land mass of this watershed. Due to the relatively low percentages of federal land involved, and with no changes being made to livestock management on these allotments, there would be no significant impact. Livestock grazing is only one of several disturbance activities within the area. Some uses with similar impacts are off-road vehicles, other recreational use and road construction and maintenance. There would be no measurable cumulative impacts from the **proposed action** or the **no grazing alternative**.

Conformance with Plans

The proposed permit renewals within this document are in conformance with the Taos Resource Area Management Plan (1988). Livestock grazing impacts were analyzed on a Resource Area wide basis in the Taos Resource Management Plan. An Allotment Evaluation (AE) document has been prepared for each allotment and is available for review at the Taos Field Office. Individual allotment maps are available at the Taos Field Office and upon request.

Consultation and Coordination

This Environmental Assessment will be mailed to all individuals or organizations who have notified the Taos Field Office of their interest. These individuals or organizations will be given 15 days to make comments on the accuracy of this document.

Preparers

This document was prepared and reviewed by a team from the Taos Field Office. They include:

Scott Draney - Department of Game and Fish
Greg Gustina – Fishery Biologist
Terry Humphrey - Multi-Resource Manager
Linus Meyer - Rangeland Management Specialist
Jonathan Riehn – Archeologist
Tami Torres - Outdoor Recreation Planner
Paul Williams – Archeologist
Valerie Williams – Wildlife Biologist
Lora Yonemoto - Realty Specialist
Jacob Young – Rangeland Management Specialist

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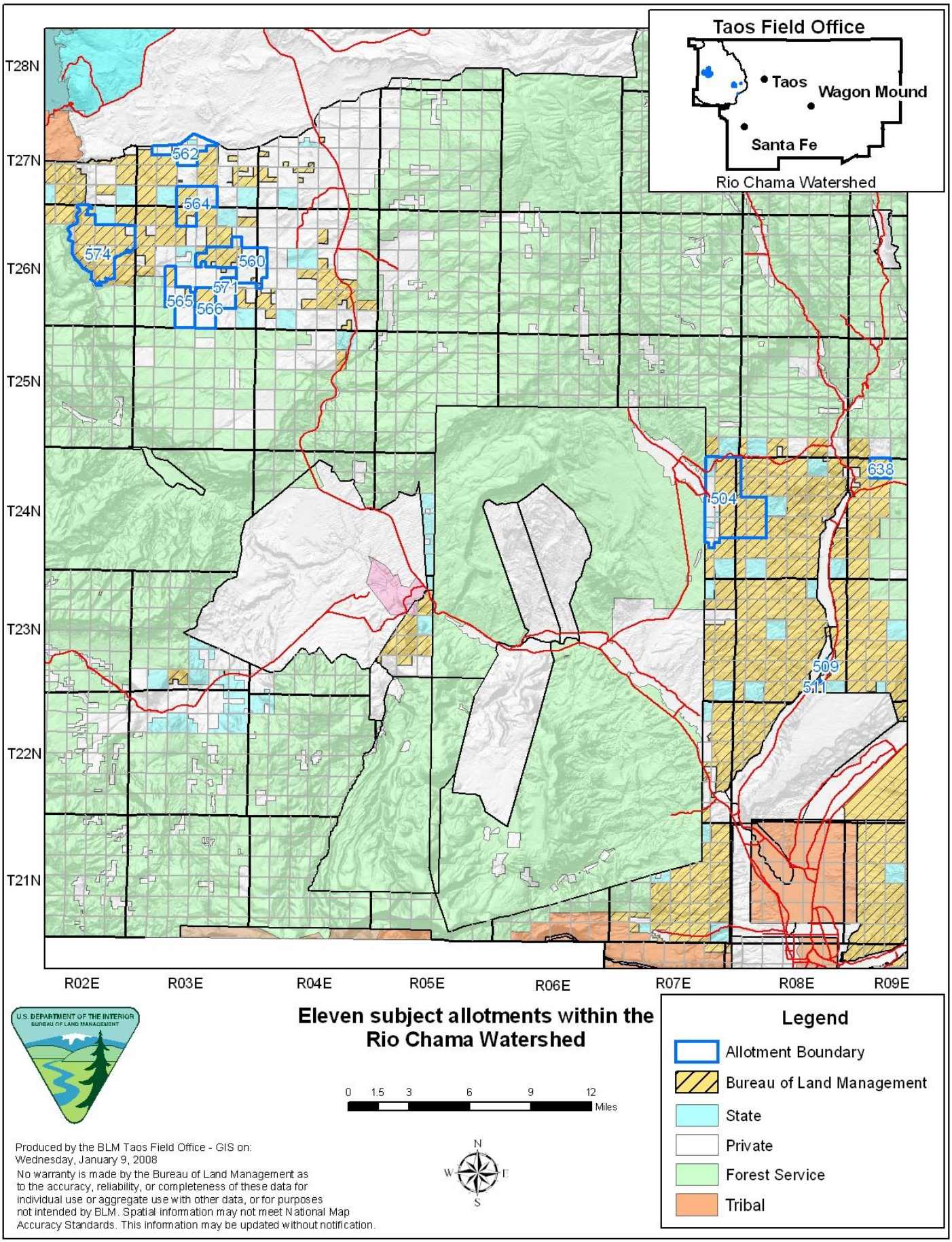

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BUREAU OF LAND MANAGEMENT

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